

UPS

Uninterruptible Power System

Line Interactive *Network* UPS

**800VA/1000VA
1200VA/1500VA/2200VA**

USER'S MANUAL

**Printed in USA
ABC**

Important safety instructions

Thank you for selecting this uninterruptible power system (UPS). It provides you with better protection for connected equipment.

Please read this manual!

This manual provides safety, installation and operating instructions that will help you derive the fullest performance and service life that the UPS has to offer.

Please save this manual!

It includes important instructions for the safe use of this UPS and for obtaining factory service should the proper operation of the UPS come into question.

Please save or recycle the packaging materials!

The UPS's shipping materials were designed with great care to provide protection from transportation related damage. These materials are invaluable if you ever have to return the UPS for service. Damage sustained during transit is not covered under the warranty.

Table of contents

1	Introduction	1
2	Safety	2
3	Presentation	3
4	Front Panel	3
5	Rear Panel	4
6	Installation	5
7	Operation	7
8	Alarms	8
9	Software Options	9
10	Computer Interface Port	10
11	Battery replacement	11
12	Troubleshooting	12
13	Storage	12
14	Specifications	13

1. INTRODUCTION

The product is line interactive UPS with the newest technology and powerful function. The LINE INTERACTIVE UPS is with AVR function allows input voltage range from 75% to 125%, including on line voltage boost-up & buck down. An ideal protection equipment for critical connected loads. It is based on microprocessor controls, with utility power connected, the charging is ongoing, no need to switch ON the UPS and at back-up mode, UPS can be automatically turned OFF if none of the connected loads is operating to save the battery energy. The indicator will be ON when battery needs replacement and a cyclic self-testing function is included in order to verify both the operation of the UPS and the condition of the battery.

In addition, This UPS provides advanced single telephone line or modem surge suppression through the modular connectors on the back panel.

The LINE INTERACTIVE UPS and RUPS series monitoring software (optional kits) makes your computer operate intelligent and provides you with the ability of perfect protection of your critical devices.

Note: There is no guarantee that interference to radio/TV will not occur in a particular installation. If this UPS causes interference to radio or television reception, which can be determined by turning the UPS off and on, the user is encouraged to try to correct the interference by one or more of following measures:

- ***connect the equipment to an outlet on a circuit different from that to which the receiver is connected***
- ***increase the separation between the equipment and the receiver***
- ***reorient the receiving antenna***

2. Safety

CAUTION !

- To reduce the risk of electric shock, disconnect the UPS from the mains supply before installing a computer interface signal cable. Reconnect the power cord only after signaling interconnections have been made.
- The internal energy source(the battery) cannot be de-energized by the user. The output may be energized when the unit is not connected to a mains supply.
- The right way to de-energize the UPS properly in an emergency is to move the I/O switch to the OFF position and disconnect the power cord from the mains supply.
- The socket-outlet shall be installed near the equipment and easily accessible.
- Attention, hazardous through electric shock. Also with disconnection of this unit the main, hazardous voltage still may be accessible through supply from battery. The battery supply should be therefore disconnected in the plus and minus pole when maintenance of service work inside the UPS is considered.
- Do not dispose of batteries in a fire, the battery may explore.
- Do not open or mutilate the battery, released electrolyte is harmful to the skin and eyes.
- A battery can present a risk of electric shock and high short circuit current. The following precaution should be observed when working on batteries
 - Remove watches, rings or other metal objects.
 - Use tools with insulated handles.

Caution: Risk of electric shock - hazardous live parts inside this unit are energized from the battery supply even when the input AC power is connected.

Caution: Risk of electric shock, do not remove cover. No user serviceable parts inside, Refer servicing to qualified service personnel.

Warning: To reduce the risk of fire, replace only with the same type and rating of fuse.

Warning: To reduce the risk of fire or electric shock, install in temperature and humidity controlled indoor area of conductive contaminants.

3. Presentation

FRONT PANEL

3.1 "REPLACE BATTERY" indicator (RED LED)

The LED illuminates when the UPS's battery is no longer useful and must be replaced.

3.2 "BUCK AVR (VOLTAGE REDUCTION)" indicator (YELLOW LED)

The LED illuminates when the UPS is correcting a high utility voltage condition. The loads receive normal power.

3.3 "BACK UP" indicator (YELLOW LED)

The LED illuminates when the UPS is supplying battery power to the loads.

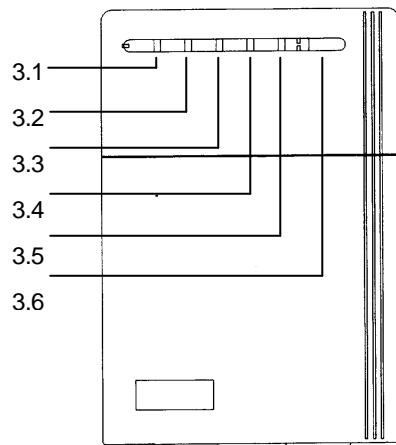
3.4 "BOOST AVR (VOLTAGE BOOST)" indicator (YELLOW LED)

The LED illuminates when the UPS is correcting a low utility voltage condition. The loads receive normal power.

3.5 "LINE NORMAL" indicator (GREEN LED)

3.6 "ON/OFF/TEST/SILENCE" button

Press the button more than 2 seconds to turn the UPS on or off, press the button less than 1 second to activate the UPS's self-testing or silence the back up alarm.



800VA/1000VA/1200VA/1500VA/2200VA

REAR PANEL

3.10 MAIN SWITCH

3.11 REMOTE PORT (COMPUTER INTERFACE)

Provide both RS-232 and relay signal to support NOVELL, UNIX, DOS, WINDOWS and other operating systems.

3.12 TEL./MODEM SURGE PROTECTION

Surge protection for telephone and modem line to have the complete safety connection for INTERNET service.

3.13 SITE WIRING FAULT INDICATORS (RED LED)

It comes on when the UPS is connected to an improperly wired AC power outlet.

Note: This device is available on 110 Vac model only.

3.14 SURGE PROTECTION OUTLET

The full time surge protection outlet provides protection from surges such as those created by lighting or connected equipment which has high initial current. Plug equipment that does not require power during a utility power failure into the outlet. This could include a printer, scanner, fax, audio device and power generator.

3.15 EXTERNAL BATTERY PACK CONNECTOR (optional)

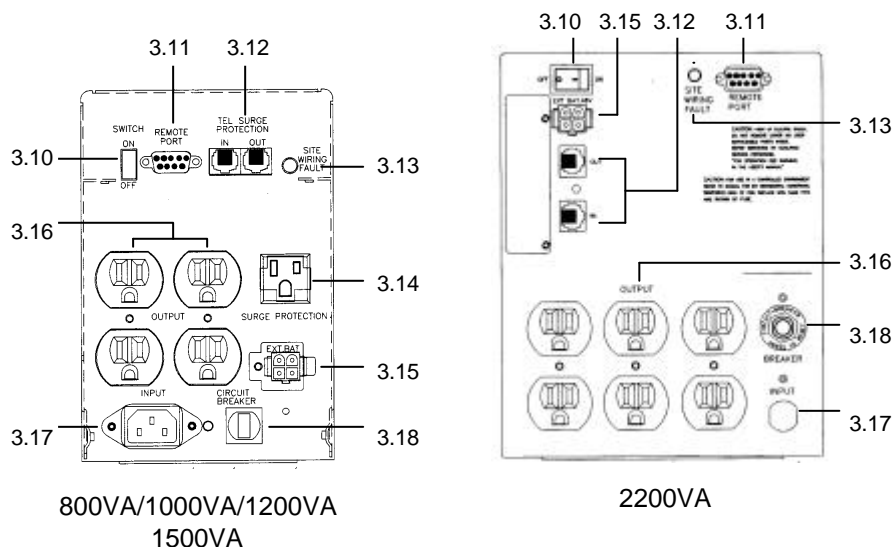
Caution: Use only factory supplied or authorized connecting cable for external battery !

3.16 OUTPUT POWER RECEPTACLES

3.17 AC INPUT POWER RECEPTACLE

3.18 INPUT CIRCUIT BREAKER

It trips when the connected loads exceed the protected receptacle's capacity. The center plungers of the circuit breakers extend when tripped.



4. Installation

4.0 Inspection

Inspect the UPS upon receipt. The packaging is recyclable; save it for reuse or dispose of it properly.

4.1 Placement

Install the UPS in a protected area with adequate air flow and free of excessive dust. Do not operate the UPS where the temperature and humidity is outside the specified limits.

4.2 Connect Computer Interface (optional)

UPSMON series software (or other power management software) and an interface kits can be used with this UPS. Use only kits supplied or approved by the manufacturer. If used, connect the interface cable to the 9 pin computer interface port on the back panel of the UPS.

Note: *Computer interface connection is optional. The UPS works properly without a computer interface connection.*

Caution: *Use only factory supplied or authorized UPS monitoring cable !*

4.3 Connect external battery pack (optional)

Before connecting, make sure the external battery pack and the connector cable are compatible with this UPS.

Note: *External battery connection is not necessary. The UPS works properly without a external battery pack connection.*

Caution: *Use only factory supplied or external battery connection cable !*

4.4 Connect the telephone/modem lines (optional)

Connect a single line telephone or a modem line into the telephone/modem surge protection sockets on the back of the UPS. The RJ-45/RJ-11 modular sockets accept standard single line telephone connections. This connection will require another length of telephone cable (supplied).

Note: This connection is optional. It is not necessary to use this UPS.

Caution: The telephone line current limiting feature could be rendered inoperable if improperly installed. Make sure that the telephone line from the wall is plugged into the connector marked "IN", and the device to be protected (telephone, modem, etc.) is plugged into the connector marked "OUT".

Caution: This surge protection device is for indoor use only and never install telephone wiring during a lightning storm.

4.5 Connect to Utility

Connect the AC input power connector to utility power to power up the UPS.

4.6 Charge the battery

The UPS charges its battery whenever it is connected to utility power. For best results, charge the battery for 4 hours in the initial use.

4.7 Connect the loads

Plug the loads into the output connectors on the rear of the UPS. To use the UPS as a master on/off switch, make sure all of the loads are switched on.

Caution: Never connect a laser printer or plotter to the UPS with other computer equipment. A laser printer or plotter periodically draws significantly more power than when idle, and may overload the UPS.

4.8 Check the Site Wiring Fault Indicator

After plugging in the loads and the UPS, check the site wiring fault indicator on the rear panel. See section 3.17 for location of the indicator on the back panel. It lights if the UPS is plugged into an improperly wired AC power outlet. Wiring faults detected include ground, hot-neutral polarity reversal, and overloaded neutral circuit.

Note: This device is available on 110 Vac model only.

5. Operation

5.1 Switch on

With the UPS plugged in, turn on MAIN SWITCH (on rear panel) and press ON/OFF/TEST/SILENCE button (on front panel) less than 2 seconds to switch the UPS on. The UPS will perform self-testing each time when it is switched on.

Note: *When switched off the UPS maintains the battery charge and will respond to commands received through the computer interface port.*

5.2 Switch off

By pressing and holding ON/OFF/TEST/SILENCE button until the "LINE NORMAL" or "BACK UP" LED off. To save battery power, turn off MAIN SWITCH (on rear panel) if you leave the UPS along over one day.

5.3 Self-test

Use the self-test to verify both the operation of the UPS and the condition of the battery. In normal utility power, push the ON/OFF/TEST/SILENCE button less than 1 second and UPS performs a self-test function. During the self-test, the UPS operates a back up mode.

Note: *During the self-test, the UPS briefly operates the loads on-battery (the on-battery LED comes on).*

If the UPS passes the self-test, it returns to on-line operation. The on-battery LED does off and the on-line LED goes on steady.

If the UPS fails the self-test it immediately returns to on-line operation and lights the replace battery LED. The loads are not affected. Recharge the battery overnight and perform the self-test again. If the replace battery LED is still on, ask our nearest dealer to replace battery.

5.4 Silence

In "BACK UP" mode, push ON/OFF/TEST/SILENCE less than 1 second to silence the audible alarm. (The function is void when under condition of "LOW BATTERY" or "OVERLOAD")

Note: *At back-up mode, UPS can be automatically turned off if none of the connected loads is operating.*

5.5 Cold start

When the UPS is off and there is no utility power, use the cold start feature to apply power to the loads from UPS's battery. Press the ON/TEST button (see section 3.1 for location of the indicator on the front panel) until the UPS beeps.

5.6 Shutdown mode

In shutdown mode the UPS stops supplying power to the load, waiting for return of utility power. If there is no utility power present, external devices (e.g., servers) connected to the computer interface can command the UPS to shutdown. This is normally done to preserve battery capacity after the graceful shutdown of protected servers. The UPS will scroll the front panel indicators sequentially in shutdown mode.

6. Alarm

6.1 "BACK UP" (slow alarm)

When in BACK UP mode, the YELLOW LED illuminates and the UPS sounds an audible alarm. The alarm stops when the UPS returns to LINE NORMAL operation.

Press the ON/OFF/TEST/SILENCE button during on-battery alarms to stop the beeping.

6.2 "LOW BATTERY" (rapid alarm)

In BACK UP mode, when the battery energy runs low, the UPS beeps rapidly until the UPS shuts down from battery exhaustion or returns to LINE NORMAL operation.

6.3 "OVERLOAD" (continuous alarm)

When the UPS is overloaded (the connected loads exceed the maximum rated capacity) the UPS emits continuous alarm to warn a overload condition. Disconnect nonessential load equipment from UPS to eliminate the overload.

6.4 "REPLACE BATTERY" (continuous alarm)

The UPS emits continuous beeps and the REPLACE BATTERY LED illuminates if the battery fails the self-test. See section 9 to replace battery by yourself or call your dealer for services.

7. Software options

7.1 Power Monitoring Software

The UPSMON series software (or other power monitoring software) is applied standard RS-232 interface to perform monitoring functions, and then provides an orderly shutdown of a computer in the event of power failure. Moreover, UPSMON displays all the diagnostic symptoms on monitor, such as Voltage, Frequency, Battery level and so on..

The software is available for DOS, Windows 3.1x, Windows 95, Windows NT V3.5 or later, Novell Netware and others. Call your dealer for more information on computer OS compatible solutions.

7.2 Interface Kits

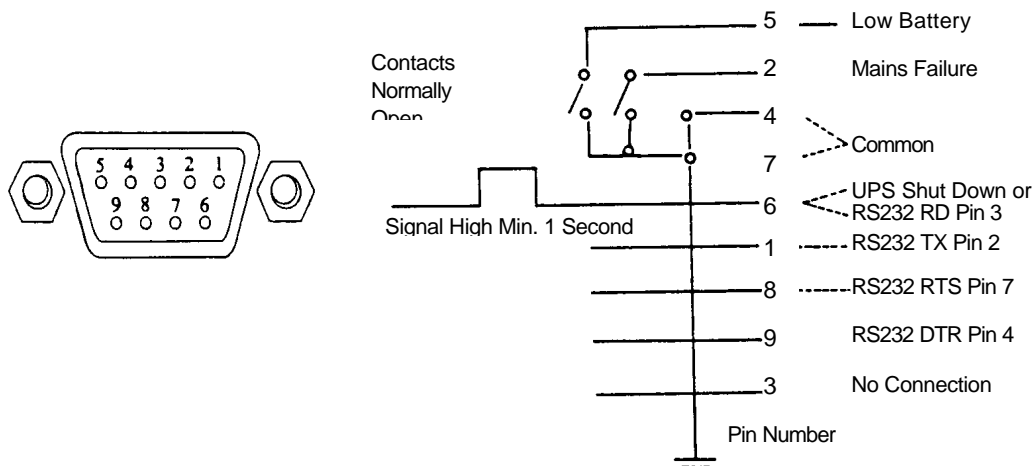
A series of interface kits is available for operation systems that provide UPS monitoring. Each interface kit includes the special interface cable required to convert status signals from the UPS into signals which individual operating system recognize. The interface cable at UPS side must be connected to REMOTE PORT , at computer side can be either COM 1 or COM 2. The other installation instructions and powerful features please refer to READ.ME file.

Caution: Use only factory supplied or authorized UPS monitoring cable !

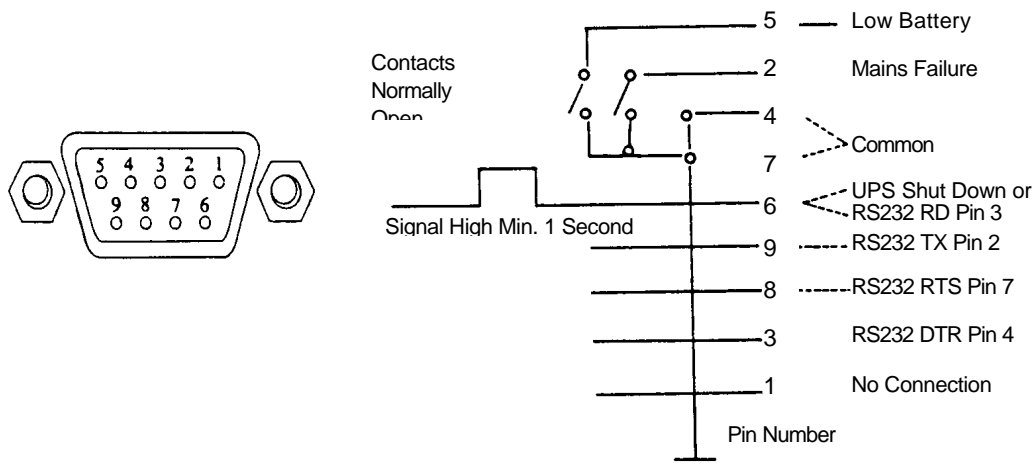
8. Computer Interface Port

The computer interface port has the following characteristics:

D-SUB 9 Pin Female Connector for white cable



D-SUB 9 Pin Female Connector for purple cable



9. Battery Replacement

Your battery should run anywhere from 3-5 years before needing to be replaced. Please follow the instructions below for easy battery replacement.

Note: When replace battery, disconnect the utility power then open the case and take notice of the battery's polarity while install the new battery to avoid short.

- 1) Unplug unit from AC power source and disconnect all connected equipment.
- 2) Disconnect AC power cord from unit..
- 3) Turn unit upside down and using a phillips screw driver, unscrew the 4 screws holding the top of the unit to the bottom. Put screws in a safe place for reconnection.
- 4) Holding the top together firmly with the bottom, turn the entire unit right side up.
- 5) Carefully lift top cover off and place to the side. The connecting wires and electronics will be exposed. Be careful not to touch any inner components when changing the battery.
- 6) Remove the 2 connecting wires from the battery.
- 7) You can now easily remove the battery from the unit

Caution: Do not dispose of battery in fire.

Caution: Do not attempt to open the battery.

Caution: The following precautions should be taken when replacing the battery

- ***remove watches, rings, etc...***
- ***use tools with insulated handles***

- 8) Place your new battery in the same position/direction and reconnect the wires red wire-position(+) and black wire negative(-)
- 9) Please follow steps 5,4 and 3 (in that order) to reconnect the entire unit.
- 10) Please follow manual instructions in order to properly reconnect your equipment.

10. Troubleshooting

PROBLEM	POSSIBLE CAUSE	ACTION TO TAKE
UPS not on LED not light	On/off/test/silence button not pushed or push too short	Press the on/off/test/silence button more than 1 second
	Battery voltage less than 10V	Recharge the ups at least 4 hours
	PCB failure	Replace the PCB, call for service
	Load less than 20W at battery mode	Normal condition
UPS always at battery mode	Power cord lose	Replug the power cord
	AC FUSE burn out	Replace the AC fuse
	Line voltage too high, too low or black out	Normal condition
	PCB failure	Replace PCB, call for service
Back up time too short	battery not fully charged	Recharge the UPS at least 4 hours
	PCB failure	Replace PCB, call for service
Buzzer continuous beeping	Overload	Remove the noncritical loads
RED LED light	Battery failure	Replace battery, call for service

11. Storage

10.1 Storage conditions

Store the UPS covered and upright in a cool , dry location, with its battery fully charged. Before storing, charge the UPS for at least 4 hours. Remove any accessories in the accessory slot and disconnect any cables connected to the computer interface port to avoid unnecessary draining the battery.

10.2 Extended storage

During extended storage in environments where the ambient temperature is -15 to +30 (+5 to +86 °F), charge the UPS's battery every 6 months.

During extended storage in environments where the ambient temperature is +30 to +45 (+86 to +113 °F), charge the UPS's battery every 3 months.

12. Specifications

MODEL		KIN 800AP	KIN 1000AP	KIN 1200AP	KIN 1500AP	KIN 2200AP
INPUT	Capacity	800VA	1000VA	1200VA	1500VA	2200VA
	Voltage	+/-25% at line input				
	Frequency	50 or 60Hz +/-10% (auto sensing)				
OUTPUT	Voltage (on battery)	Simulated sine wave at 100V/110/115V/120V/220V/230V/240V +/-5%				
	Frequency (on battery)	50 or 60Hz +/-0.5%				
	Voltage Regulation AVR	AVR automatically increase output voltage 15% above input voltage if -9% to -25% of nominal. AVR decrease output voltage 13% below input voltage if +9% to +25% of nominal				
	Transfer time	2/4 milliseconds, including detection time				
PROTECTION And FILTERING	Spike Protection	320 Joules, 2ms				
	EMI/RFI filter	10dB at 0.15MHz, 50dB at 30MHz (for xxxAP models only)				
	Overload Protection	UPS automatic shutdown if overload exceeds 110% of nominal at 60 second and 130% at 3 seconds.				
	Unit Input	Circuit breaker for overload & short circuit protection				
	10Base-T Cable Port	Network (UTP, RJ-45) compatible jacks				
BATTERY	Short Circuit	UPS output cut off immediately or input circuit breaker protection				
	Type	Sealed, maintenance-free lead acid batteries With 3-6 years typical lifetime				
	Typical Recharge Time	4 hours (to 90% of full capacity)				
	Protection	Automatic self-test & Discharge protection, Replace battery indicator				
PHYSICAL	Back up Time	10 - 30 minutes (depending on computer load)				
	Net Weight Kg(lbs)	13 (28.6)	15 (33.0)	15.2 (33.4)	15.6 (34.3)	26.2 (57.6)
	Shipping Weight Kg(lbs)	14.2 (31.2)	16.2 (35.6)	16.4 (36.1)	16.8 (36.9)	28.2 (62)
	Dimension(mm) WxDxH	130 x 382 x 201				169 x 448 x 227
	Input Inlet	IEC 320 power inlet				
ALARM	Battery Back-Up	Slow beeping sound (about 0.47Hz)				
	Battery Low	Rapid beeping sound (about 1.824Hz)				
	Overload	Continue beeping sound				
INTERFACE	RS-232 Interface	Bi-directional communication port				
CONFORMANCE	Safety	Meet IEEE 587 standard				
	Surge	cUL, TUV, CE, meet FCC				
ENVIRONMENT	Ambient operation	3,500 meters max. elevation, 0-95% humidity non-condensing 0-48 deg C				
	Audible noise	<48dBA (1 meter from surface)				
	Storage condition	15000 meters max. elevation				

© 1999 Powercom Co., Ltd. All right Reserved. All trademarks are property of their respective owners.
Specifications subject to change without notice.

